

REMARKS:

REQUEST FOR CONTINUED EXAMINATION

A Request for Continued Examination (RCE) is filed herewith along with the appropriate fees including the fee for a 1-month extension of time. Applicant submits that entry of the above amendments is proper in view of the filing of the RCE.

AMENDMENTS TO THE CLAIMS

Claims **12-37** were examined. Claim **38** is newly presented. Claim **18** is canceled. Claims **12, 19, 36, and 37** are amended. Support for the amendments can be found in the specification as filed at page 3, lines 12-22, page 4, lines 3-27, page 5, line 21 through page 6, line 2, and page 6, lines 17-25 (corresponding to paragraphs [0012], [0014]-[0020], [0025], and [0029] of the application as published). No new matter has been entered.

With regards to the informalities cited for claims **12, 16-17, and 36**, Applicant submits that the amendments to the claims **12** and **36** reciting at least 100 layers of material provide sufficient enablement for one of skill in the art to achieve the desired barrier quality. The informality in claim **27** is now moot based on the amendment to claim **12** regarding superhydrophobic material in the layers.

Applicant also submits that the restriction of amended claim **37** is inappropriate as claim **37** recites all elements set forth in independent claim **12**. Review and reconsideration is respectfully requested.

CLAIM REJECTIONS

CLAIMS 12, 16,-17 and 36, AS AMENDED, COMPLY WITH THE ENABELEMENT REQUIREMENT OF 35 USC 112, FIRST PARAGRAPH

Applicant submits that the rejections of claims **12, 16-17 and 36** are overcome by the amendments of these claims for the reasons discussed above. Withdrawal of the rejections is respectfully requested.

CLAIMS 27, AS AMENDED, COMPLIES WITH THE WRITTEN DESCRIPTION REQUIREMENT OF 35 USC 112, FIRST PARAGRAPH

Applicant submits that the rejection of claim 27 is overcome by the amendment claim 12 for the reasons discussed above. Withdrawal of the rejection is respectfully requested.

CLAIM 12 IS ALLOWABLE OVER BRINKER AND DAM

Claims 12-21, 23-25, 27-30, and 34-35 were rejected under 35 USC 103(A) as being anticipated by U.S. Patent 6,264,741 to Brinker et al. (hereinafter “Brinker”) in view of European Patent No. 1225188 to Dams (hereinafter “Dams”). The Applicant respectfully traverses the rejection in part and overcomes the rejection in part.

Per MPEP 2145(X)(D)(3), **proceeding contrary to accepted wisdom is evidence of nonobviousness**. Applicant submits that a material which hydrates like nacre would make for a poor moisture barrier and using that material as the basis for a moisture barrier is proceeding contrary to accepted wisdom. Specifically, Brinker seeks to mimic nacre (see Brinker Col. 1, lines 35-50), but nacre is not a water barrier. Nacre is easily hydrated after only five hours of soaking in water (see, e.g., Barthelat, “Tensile Testing of Abalone Nacre Miniature Specimens Using Microscopy and Speckle Correlation”, page 2, col. 4, paragraph 2), and the toughness of the material is related to the degree of hydration (see, e.g., Menig et al., Quasi-static and Dynamic Mechanical Response of *Haliotis Rufescens* (Abalone Shells), Acta Mater. 48 (2000), page 2392, col. 1). Absent the teachings found in Applicant’s patent application, the Office has failed to cite the motivation for one of skill in art to modify the nacre-like material of Brinker to be a moisture barrier. It should also be understood that merely being a hardcoat with improved mechanical strength and toughness does not equate to being a moisture barrier. The Sheldon reference and US Patent 5,731,060 (cited in the previous IDS) shows that the barrier film and hardcoat functions are physically distinct from one another. Accordingly in both cases, the hard coat and barrier film functions are not inherently linked. Thus, **Applicant has proceeded against accepted wisdom by incorporating water barrier qualities into the presently claimed laminate and by starting with a poor moisture barrier material**. Applicant respectfully requests that the Office set forth the rationale for those of skill in the art to modify the nacre-like material of Brinker in view that doing so would be contrary to accepted wisdom.

Additionally, Claim 12 recites that **more than one of the alternating layers contains superhydrophobic material**. There is no disclosure in Dams suggesting substituting the alternating layers to contain superhydrophobic material. Altering the organic layer of the

nanolaminate is non-obvious. As pointed out by the Office, the traditional technique in the art as noted in the previously cited Singh reference is to change the inorganic layer by increasing the amount of silicate in the inorganic material to achieve good barrier properties (see Singh, page 64, lines 25-29). There is no teaching cited by the Office suggesting the modification of the organic layer to improve the moisture barrier qualities. Other than the teachings of the present application, Applicant fails to see where the Office has cited motivation to replace the multiple organic layers with that of Dams.

Even if Brinker were combined with Dams, the resulting device would not be the claimed invention. The teachings of Dams merely suggest a surface application of its fluorochemical silane (see page 3, lines 20-25). Dams describes applying the material to substrates or applied to hard surfaces. Combining Brinker with Dams merely results in a top layer with Dams' fluorochemical silane, not incorporation of superhydrophobic material into the nanolaminate as presently claimed. As the cited references fail to show or suggest all elements of the claimed invention, Applicant respectfully requests that the rejection to claim 12 be withdrawn.

As the cited references fail to show or suggest the claimed invention, claim **12** and its dependent claims are now in condition for allowance. Claims **36** and **37** are believed to be allowable for substantially the same reasons set forth above.

Additionally, new claim **38** recites that superhydrophobic groups are incorporated in the organic polymer in an amount sufficient to create a polymer with tuned hydrophobicity that decreases the permeability of the barrier film while still providing for self-assembly of nanostructures whose chemical backbones condense into a dense, stable material by way of with micelle formation and incorporation of polymer precursors into the micellar interiors. Applicant fails to see where Dams or the cited references show this combination. As such, for at least this additional reason, claim **38** is believed to be patentable over the prior art of record.

CONCLUSION

For the reasons set forth above, the Applicant submits that all claims are allowable over the cited art and define an invention suitable for patent protection. The Applicant therefore respectfully requests that the Examiner enter the amendment, reconsider the application, and issue a Notice of Allowance in the next Office Action.

Respectfully submitted,

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